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Great Homes through Modular
Insight Report

Event:	Great Homes through Modular
Date:	12 November 2020
Location:	Online

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The latest webinar in The Housing Forum's 2020 series on MMC covers MMC at scale. It follows on from:

- More Affordable Homes through MMC,
- Making Places through MMC and
- The Golden Thread through MMC.

Chairing the webinar was *Mike De'Ath from HTA Design* - co-author with Mark Farmer of the report 'Build Homes, Build Jobs, Build Innovation'.

Just that morning Mike had been joined on a webinar by *Housing Minister, Christopher Pincher* who advised that Treasury are very positive about prospects for MMC. The purpose of the report was to address issues that government really need to be aware of if there is going to be an uplift in modular delivery. That could be as much as 75,000 additional homes which could be built up through aggregating demand, particularly from local authorities – and this would be over and above the 179,000 new homes built last year, half of which were by the ten largest national housebuilders.

Image: Savoy Circus, Wembley, Brent - HTA Design LLP

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New perspectives and a pioneering approach

Tina Barnard, Watford Community Housing

Working in a consortium with 20 councils, housing associations and the local enterprise partnership, the county of Hertfordshire is driving an ambitious plan to scale up from 5,000 homes a year to over 8,000. A solution had to be found to deliver homes on two new large garden settlements and in many infill and smaller schemes. Last year, the consortium began to aggregate demand for housing in Hertfordshire and set out a prospectus inviting off- site manufacturers to develop a product for off-site homes. From 13 organisations expressing interest, the consortium is now working with two - Stewart Milne (timber frame) with framework contractors, such as Bugler and Elements Europe (light steel frame modular). This will lead to two new factories in Hertfordshire bringing inward investment and training and skills opportunities. Taking a whole lifetime cost approach, off site is going to be more cost effective and will help deliver on the carbon zero agenda.

Supporting the delivery of great homes

Andrew Shepherd, TopHat Solutions

TopHat have the financial backing to bring about an increase in capacity in the market and improving productivity and outcomes. Design quality is at the heart of what they deliver with good daylight, good air change and a good environment, which is even more important now as so many are spending more time at home. Kitchener Barracks in Chatham is a recent example of a successful design. Low carbon is a feature of the Top Hat product; timber construction with triple glazing and airtightness of 1.5.

The procurement route for MMC has to be collaborative from the outset and clients need to be clear, articulating the outcomes they expect. Too many clients will take a design, obtain planning permission and then go to the market.

Complaints about new build housing is growing in the UK and quality needs to be addressed. Working with the design team from the start ensures that manufacture includes these aspects and accommodates different designs and vernacular.

Q & A

First question from Tony Battle, Kind & Co. "*MMC must be the first thought and not the last thought. How can the sector overcome the (still common) assumptions that a traditional-build designed product can 'work' for MMC and how much cheaper the build would be if changed to MMC?*"

From Adam Woolsey, Martin Arnold, a question on the robustness of the procurement of modular products in a sector that relies heavily on single stage selective tendering and design and build contracts homes which shows a significant trend.

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Response: Clients should look at each of their schemes and ask if they are suitable for MMC at the very beginning. Approaching procurement as a consortium can be challenging if organisations have different procurement rules but it can work with a robust process; an alternative route is to go through a framework.

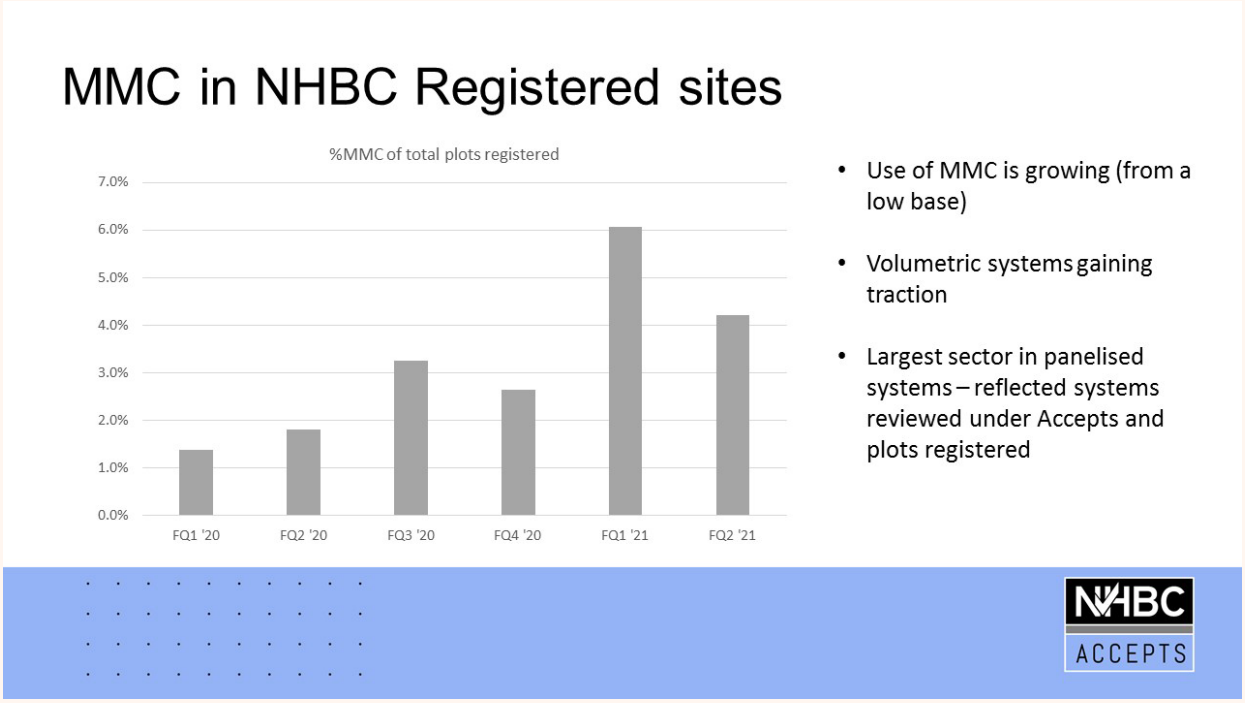
Mike McGaun, Travis Perkins Managed Services asked if panellists have been dealing with central government on modular and if so, does the government see modular as the way forward to build affordable housing quicker (and better) than the current build model?

Response: Excellent start with Homes England funding – 20% for MMC - and now over to the industry to respond and demonstrate what it can do. Conversations and access have been happening. No doubt that for the government, every pound spent on housing gives a great return.

Warranty and standards for modular homes

Richard Lankshear, NHBC

MMC registrations with NHBC were around one in 100 about 18 months ago; currently it is one in 20 homes which shows a significant trend. NHBC Accepts was set up this year to address and support this part of the sector. Getting off-site systems correct is an intensive system of design, manufacture and process control. Quality should be be addressed in three key areas; design (including design for manufacture and assembly), manufacturing controls and site erection. NHBC Accepts is there to provide confidence in innovative construction through assessment by thorough and rigorous review as a service to product and system manufacturers. Seeing the big picture, the beneficiaries are everyone involved with MMC, developers, investors, lenders, builders etc.



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The assessment is online supported by NHBC's technical documents. Manufacturers provide a detailed systems manual which is assessed and manufacturing production controls are reviewed to ensure consistent continuous results. Once a system is accepted every home is inspected at four critical stages and also inspected on site.

Off-site solutions to providing great homes

Kwame Ohene-Adu, HTA Design

The key to delivering great homes through modular is to have manufacturers on board at the start of the design process. Designers too, have to adopt a different mind-set in designing for manufacture, and this is also linked with an understanding of how a scheme is going to be procured. The design team has to be fully assembled much earlier than through traditional routes and be prepared to work in a very collaborative manner to enable the high-level design resolution necessary very early on in the process, along with the enhanced coordination that is required prior to the start of the manufacturing process.

It is also important for designers to understand the distinction between systems and products and the suitability for the type of homes and places they are designing. For instance, a more flexible system may respond better to conditions on more challenging urban sites, while a less flexible but repeatable product may better suit a pattern book approach. Ultimately both approaches lead to well-designed homes that can be repeated and then upscaled. Through that process, we move towards aggregation and delivery at scale.

Although not ideal, where a manufacture has not been chosen at the start of the design process it is important for clients to engage experiences designers who understand the capabilities and limitations of viable systems to enable them to optimise schemes to maintain flexibility in procurement.

Comparisons of a traditional design process and a modular process showed that with both approaches, a lot of work was done at the beginning, planning permission was obtained and then a tender after which progress stalled on the traditional scheme while modular homes were being manufactured. Much later on as the schemes were being constructed, time demands increased with many queries arising on the traditional scheme which was significantly more than with modular as after manufacture, much of the hard work has been done.

Q & A

Paul Latham from Aspire Housing made the point that one of the biggest hurdles in adopting MMC for clients is inconsistency in lenders requirements and what can be done to ensure lenders adopt a consistent approach? A related point is the difficulty consultants face in getting Professional Indemnity Insurance with some restrictions on the proportion of insurance funding for MMC provided by housing associations.

Response: MMC is not new - with all forms of construction, design details have to be followed, manufacturing needs to be checked and details inspected on site. This has to be demonstrated on site.

Progress has been made with the signing of a Memorandum of Association (MoU) between NHBC and other warranty providers; this will give the market confidence that all are working to the same technical standards and that behind the warranty is the assurance that the product does meet the criteria.

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John Milner from Baily Garner queried whether the MoU was available for review.

Response: The MoU is confidential between the parties and MHCLG. However, at its heart is the need for greater transparency in approach and sharing of technical knowledge. The clarity of information published around NHBC Accepts demonstrates this with the hope that other warranty providers will follow this approach.

Innovation does not come in nicely packaged categories, so it isn't surprising that even after MHCLG set out the seven categories, there are products and systems that have attributes in multiple categories. NHBC Accepts assess all innovative construction against the same standards and must demonstrate performance in design, manufacture and construction.

Ian Lock from Baxi Heating UK asked if there is an appetite to expand approval into wider MMC solutions including category 5 heating and utility solutions.

Response: There is growing demand for NHBC Accepts to extend but at present focuses on the structure and envelope of the home.

Laura Hume from Hyde asks how we ensure embodied carbon is reduced through the use of modular homes.

Response: Examples show 40% savings with modular compared to traditional; seven vehicle trips to site compared with fifteen and one tenth of waste generated. Other local examples gave 60-70% reduction in traffic movement with modular.

Clare Chettle, Airey Miller and Susan May, Urban Design London raised issues of recent fires and how buildings with internal cavities resist fire?

Response: The first step is to recognise the risk and a cavity is an additional risk. Once recognised, this can be addressed through quality assurance. Potential fire risk will be diminished by lack of foreign materials in the cavity-important that the right members of the team know enough about the risks and talk to the manufacturers to make sure that details address that.

For further information on demonstrator projects and standard metrics for smart construction visit www.smartconstructionnetwork.org.uk

The webinar agenda and panelists' biographies are available in the Webinar Guide.

The Housing Forum is grateful to the panellists and attendees for their contributions to this webinar.

PANELISTS

Mike De'Ath	Partner, HTA and Board Member The Housing Forum
Tina Barnard	Chief Executive Watford Housing Community Trust
Andrew Shepherd	Managing Director TopHat Solutions
Richard Lankshear	Innovation Manager NHBC
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